STRATEGIC PRACTICE

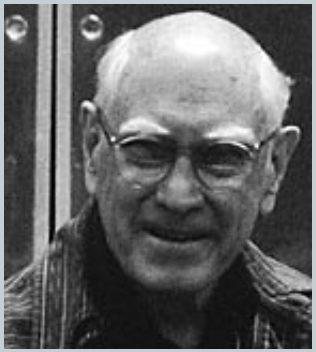
Dr. Cindy Dewey

Utah State University

SNATS Chat November 5, 2017

ACKNOWLEDGEMENTS

- Oren L Brown, The Juilliard School
- Katherine Verdonlini, PhD, SLP-CCC
- Lynn Helding, USC Voice Faculty
- Noah Kageyama, https://bulletproofmusician.com



THE POWER OF BELIEVING YOU CAN IMPROVE

- Growth mindset:
  - You can cultivate and improve your abilities through practice and effort
  - Leads to desire to learn
  - Embrace challenges
  - Persist despite obstacles
  - See effort as path to mastery
  - Learn from criticism

Mindset: The New Psychology of Success (Carol S. Dweck, 2006)

WHAT IS MOTOR LEARNING?

- Motor learning is a PROCESS
- which is INFERRED (rather than directly observed)
- that leads to PERMANENT CHANGES
- In the POTENTIAL for motor performance
- as the result of exposure or PRACTICE

Katherine Verdolini, CH. 10 "Motor Learning Principles," in Ingo Titze and Katherine Verdolini, *Vocology: The Science and Practice of Voice Habilitation* (Salt Lake City, UT: NCVS, 2012)

WHAT ARE TEMPORARY PERFORMANCE SHIFTS?

- Observable changes in performance
  - Can be seen, measured right now
  - Important first step on the pathway to learning
- May be negative or positive
- A positive performance shift does not necessarily indicate that a student has learned something.
  - The Master Class Effect: Dramatic shifts in performance with no resulting learning
- A negative performance shift may signal that learning is occurring
  - Walking without Crutches: New gesture is not yet well established but is beginning to replace habitual response

THE 3 STAGES OF MOTOR LEARNING

Stage	Process	Characteristics
Discovery	Gathering Information (declarative learning) and Having New Experiences (procedural learning)	Large gains (performance shifts) Inconsistent Performance (no permanent change)
Stabilization	Repetition and Refinement (practice) Putting actions together Requires increasing reliability of sensory awareness May need to use both sensory AND visual feedback	Small gains Much conscious effort required (brain effort-not muscle effort) Must mentally direct new coordination/skill or you revert to default (habitual response)
Autonomous	Takes much time and strategic practice to reach this stage	Skill seems unconscious, automatic and smooth

Stage 1: Cognitive
- Learning What to Do
- Visual Cues more important
- Trial and Error
- Environmental Factors

Stage 2: Associative
- Learning How to Do
- Sensory Cues more important
- Better Error Detection

Stage 3: Autonomous
- Requires no conscious direction
- Skill generalization to other situations

THE PROBLEM WITH TO DO'S

There is a sizeable body of evidence that indicates that trying to improve skill (i.e. motor learning) through efforts that direct the actual biomechanics results in less effectiveness AND less efficiency.

In other words, when we tell our 'parts' what to do

open your mouth
raise your soft palate
keep your tongue tip forward
etc., etc.

We do not do it as well, and we use more effort to accomplish the task.

EXTERNAL LOCUS OF ATTENTION

- The balance board
- The golfer
- The tennis swing
- The water bowl

- External locus of attention is more effective than internal locus of attention
  - Internal locus of attention interferes with learning
  - External locus of attention results in movement effectiveness and efficiency
  - External locus of attention results in generalization/transference

SINGER'S EXTERNAL LOCUS OF ATTENTION

- Sound
- Sensation

These are the RESULTS of the biomechanics of singing.

REPLACE THE TO DO LIST WITH A CUE AND A VIEW LIST

- Draw attention to results
- ”Viewing” can be visual and/or sensory
- Sensory cue words
- Sensory Snapshots
- Labeling
- Change your verbs: THINK & LET
- By invitation only. No command performances

TRYING FAILS – AWARENESS CURES!!!

SUGGESTIONS FOR INDUCING MODEL BEHAVIORS

- Using Reflexive Sounds
- Other triggers from unconscious behaviors
- Notice spaces/voids rather than parts
- Non-verbal cues
- Facilitative task design

STABILIZATION OF MODEL BEHAVIORS

- Testing for reliable sensory awareness
- FIND rather than FIX
- Where am I? Or the ineffectiveness of 'good' directions if you don't know where you currently are.
- Cracking some eggs
- Refining your model – moving away from stick figures
- Compare and Contrast
- Relating new experiences/sensations to previous ones
- Bridging strategies from vocalization to repertoire
- PM – AM effect

FIRST ATTEMPT RULE

- Students under-practice because they gauge their best attempts (which usually occur after a number of repetitions/revisions of their approach to the task), rather than their first attempts as a measure of learning.
  - Thus they equate their best attempt with their present skill level.
- Students mass their practice of a particular challenge/task within a practice session, rather than spacing/interleaving the practice of desired skill within the practice session.
  - Thus they greatly reduce the number of first attempts within a practice session.

CURRENT ABILITY AND THE SWEET SPOT

- Operating at the edge of your ability. One step outside current ability.
- Defining Current Ability (You Are Here!)
- The need for struggle
- Practicing Deeper
- Forced to slow down, make errors, and correct them
- Chunking
- The Success Ratio: 8 to 1 or 9 to 1

The Talent Code: Greatness Isn't Born, It's Grown. Here's How. Daniel Coyle (2009)

IMPROVING ERROR DETECTION

- Notice – Attend to best results.
- Report – Just the facts.
- How are best moments different than others?
- Increase details in terms of sensory/physical and sound differences
- Intelligent Indicative TASK DESIGN: Making errors visible to the naked eye/ear/sensory system
- Inattentive practice can lead to inadvertent error habituation
- What you pay attention to matters

DESIRABLE DIFFICULTIES

SLOW DOWN PERFORMANCE IMPROVEMENT

Enhance long-term retention and generalization

- Variability and randomization rather than predictability/constant cues (interleaving)
- Spacing rather than massing practice
- Tests rather than review or presentation

Robert Bjork, *Learning, Remembering, Believing: Enhancing human performance*. (Washington, DC: National Academy Press, 1994)

INTERLEAVING, RANDOMIZATION, AND VARIABILITY

- Interleaving
  - To insert pages between the pages of a book.
  - Process to make a system more efficient, fast and reliable by arranging data in a noncontiguous manner
  - Using related activities as interleaving
- Radomization
  - Unpredictable or random in order or arrangement
- Variability
  - Lack of consistency or fixed pattern

Practice in the Sweet Spot

(Encourage attentive practice)

AND

Identify the Best Result

(Build and refine the model)

AND

Praise the Effort

(Strengthen a growth mindset)